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BS EN 14986:2017



BSI Standards Publication

Design of fans working in potentially explosive atmospheres

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This British Standard is the UK implementation of EN 14986:2017. It supersedes BS EN 14986:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EXL/23, Explosion and fire precautions in industrial and chemical plant.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Design of fans working in potentially explosive atmospheres

Conception des ventilateurs pour les atmosphères
explosibles

Konstruktion von Ventilatoren für den Einsatz in
explosionsgefährdeten Atmosphären

This European Standard was approved by CEN on 30 October 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (EN 14986:2017) has been prepared by Technical Committee CEN/TC 305 "Potentially explosive atmospheres - Explosion prevention and protection", the secretariat of which is held by DIN.

This document supersedes EN 14986:2007.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2014/34/EU.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This European Standard is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered and indicated in the scope of this European Standard.

When provisions of this type C standard are different from those, which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

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1 Scope

1.1 This European Standard specifies the constructional requirements for fans constructed to Group II G (of explosion groups IIA, IIB and hydrogen) categories 1, 2 and 3, and Group II D categories 2 and 3, intended for use in explosive atmospheres.

NOTE 1 Operation conditions for the different categories of fans used in this European Standard are defined in Clause 4.

NOTE 2 Technical requirements for category 1 D fans are not given in this document. Where explosive dust atmospheres are regularly conveyed, explosion protection measures as described in EN 1127-1 are required if this specific use is needed.

1.2 This European Standard does not apply to group I fans (fans for mining), cooling fans or impellers on rotating electrical machines, cooling fans or impellers on internal combustion engines.

NOTE 1 Requirements for group I fans are given in EN 1710.

NOTE 2 The requirements for electrical parts are covered by references to electrical equipment standards.

1.3 This European Standard specifies requirements for design, construction, testing and marking of complete fan units intended for use in potentially explosive atmospheres in air containing gas, vapour, mist and/or dusts. Such atmospheres may exist inside (the conveyed atmosphere (flammable or not)), outside, or inside and outside of the fan.

1.4 This European Standard is applicable to fans working in ambient atmospheres and with normal atmospheric conditions at the inlet, having

- absolute pressures ranging from 0,8 bar to 1,1 bar,
- and temperatures ranging from -20 °C to +60 °C,
- and maximum volume fraction of 21 % oxygen content,
- and an aerodynamic energy increase of less than 25 kJ/kg.

NOTE 1 25 kJ/kg is equivalent to 30 kPa at inlet density of 1,2 kg/m³.

This European Standard may also be helpful for the design, construction, testing and marking of fans intended for use in atmospheres outside the validity range stated above or in cases where other material pairings need to be used. In this case, the ignition risk assessment, ignition protection provided, additional testing (if necessary), manufacturer's marking, technical documentation and instructions to the user, should clearly demonstrate and indicate the equipment's suitability for the conditions the fan may encounter.

This European Standard should not apply to integral fans as a part of Diesel engines, vehicles or electric motors.

NOTE 2 Where undated references are used in the body of the standard the latest edition applies.